

Title (en)  
METHODS OF AND DEVICES FOR MONITORING THE EFFECTS OF CELLULAR STRESS AND DAMAGE RESULTING FROM RADIATION EXPOSURE

Title (de)  
VERFAHREN UND VORRICHTUNG ZUR ÜBERWACHUNG DER WIRKUNGEN VON ZELLBELASTUNGEN UND -SCHÄDEN ALS ERGEBNIS VON STRAHLUNGS AUSSETZUNGEN

Title (fr)  
PROCÉDÉS ET DISPOSITIFS POUR LE CONTRÔLE DES EFFETS DE STRESS CELLULAIRE ET DE DOMMAGES ENTRAÎNÉS PAR L'EXPOSITION AU RAYONNEMENT

Publication  
**EP 2461747 A4 20130313 (EN)**

Application  
**EP 10807233 A 20100806**

Priority  

- US 27352109 P 20090806
- US 2010044714 W 20100806

Abstract (en)  

[origin: US2011035158A1] Methods of and devices for detecting a measurable characteristic of the gas sample. The methods and devices are able to detect a value of or a change of measurable characteristic (e.g., such as chemical concentrations), a change of chemical compositions and/or biological responses of a living organism that are induced by a stressor. The biological responses are able to include cellular stress, damage, and immune responses. The stressor is able to include an exposure to ionizing radiation. The effects of the stressors are able to be monitored in terms of changes in the chemical concentrations and chemical compositions in an exhaled breath. The chemicals are able to function as bio-markers. The chemicals that are to be monitored are able to include nitric oxide, carbon monoxide, carbon dioxide, ethane, and other molecules related to specific disease resulting from the stressor.

IPC 8 full level  
**A61B 5/08** (2006.01); **A61B 5/083** (2006.01); **A61B 5/087** (2006.01); **A61B 5/091** (2006.01); **A61N 5/10** (2006.01)

CPC (source: EP US)  
**A61B 5/08** (2013.01 - EP US); **A61B 5/082** (2013.01 - EP US); **A61B 5/0836** (2013.01 - EP US); **A61B 5/087** (2013.01 - EP US); **A61B 5/091** (2013.01 - EP US); **A61B 5/417** (2013.01 - EP US); **A61B 5/4848** (2013.01 - EP US); **G01N 33/497** (2013.01 - EP US); **A61N 5/1031** (2013.01 - EP US); **Y02A 50/20** (2017.12 - EP)

Citation (search report)  

- [X] WO 03048765 A1 20030612 - WOMENS & CHILDRENS HOSPITAL [AU], et al
- [X] US 6594016 B1 20030715 - TE LINTEL HEKKERT SACCO [NL], et al
- [X] US 5848975 A 19981215 - PHILLIPS MICHAEL [US]
- [X] WO 0163277 A1 20010830 - DOW CHEMICAL CO [US]
- [X] WEWEL: "Time course of exhaled hydrogen peroxide and nitric oxide during chemotherapy", EUROPEAN RESPIRATORY JOURNAL, vol. 27, no. 5, 1 January 2006 (2006-01-01), pages 1033, XP055049716, ISSN: 0903-1936, DOI: 10.1183/09031936.06.00101705
- [X] V. ELAYNE ARTERBERY ET AL: "Breath ethane generation during clinical total body irradiation as a marker of oxygen-free-radical-mediated lipid peroxidation: A case study", FREE RADICAL BIOLOGY & MEDICINE, vol. 17, no. 6, 1 December 1994 (1994-12-01), pages 569 - 576, XP055049670, ISSN: 0891-5849, DOI: 10.1016/0891-5849(94)90096-5
- [X] M.CROHNS, S.SAARLAINEN, J.LAITINEN ET AL: "Exhaled pentane as a possible marker for survival and lipid peroxidation during radiotherapy for lung cancer - a pilot study", FREE RADICAL RESEARCH, vol. 43, no. 10, 1 August 2009 (2009-08-01), INFORMA HEALTHCARE, pages 965 - 974, XP008159317, Retrieved from the Internet <URL:http://informahealthcare.com/doi/abs/10.1080/10715760903159162> [retrieved on 20130117], DOI: 10.1080/10715760903159162
- [X] J.B. STUBBS, B.J. MARSHALL: "Radiation Dose Estimates for the Carbon-14-Labeled Urea Breath Test", JOURNAL OF NUCLEAR MEDICINE, vol. 34, 7 January 1993 (1993-01-07), pages 821 - 825, XP002690523, Retrieved from the Internet <URL:http://www.helico.com/sites/default/files/publications/J20.pdf> [retrieved on 20130117]
- See references of WO 2011017616A1

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

DOCDB simple family (publication)  
**US 11534081 B2 20221227; US 2011035158 A1 20110210**; EP 2461747 A1 20120613; EP 2461747 A4 20130313; EP 2461747 B1 20190306; US 11903696 B2 20240220; US 2023120251 A1 20230420; WO 2011017616 A1 20110210

DOCDB simple family (application)  
**US 85204810 A 20100806**; EP 10807233 A 20100806; US 2010044714 W 20100806; US 202218070327 A 20221128